

Launch Facts

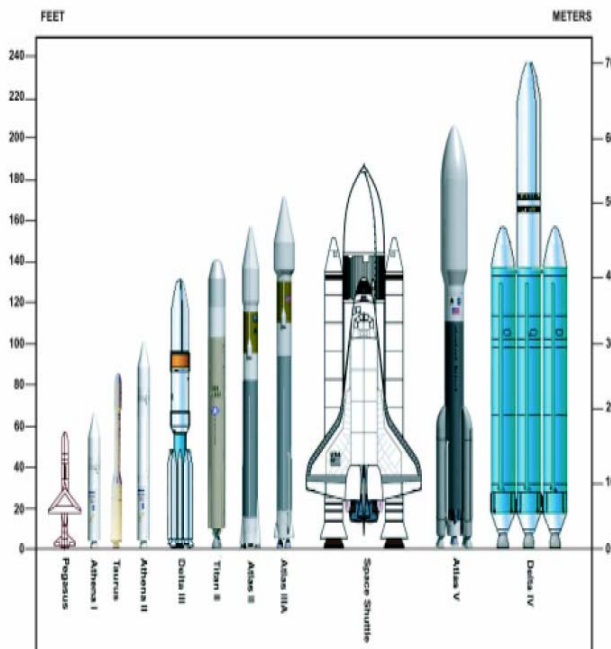
In 1997, Kennedy Space Center was assigned lead center program responsibility for NASA's acquisition and management of ELV launch services.

Primary launch sites are Cape Canaveral Air Force Station (CCAFS), Florida, and Vandenberg Air Force Base (VAFB), California. NASA's Wallops Island, Virginia, flight facility, Kwajalein Atoll in the Republic of the Marshall Islands in the North Pacific, and Kodiak Island, Alaska, are other Launch locations.

As of 2001, Delta launch vehicles have carried nearly 200 NASA scientific, wind, and communications payloads into orbit, or to other planets. NASA has used the Athena I and II vehicles to launch scientific satellites from VAFB, CCAFS, and most recently, from Kodiak Island, Alaska. Pegasus, an Orbital Sciences fleet vehicle, is the only airborne launch vehicle in the ELV fleet. Taurus is the newest vehicle in Orbital fleet.

NASA Facts – FS-2001-10-016-KSC

Launch Vehicles



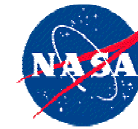
**YOUR PREPAREDNESS FOR AN
AUDIT OF NASA ELV LAUNCH SERVICES
SAFETY REQUIREMENTS WITH THESE
SAMPLE AUDIT GUIDE QUESTIONS.**

MANAGEMENT:

1. Do the Launch Services contracts document technical oversight requirements?
2. Do you have any exceptions, deviations, or waivers to NPD 8610.23? If so, what is the status of all exceptions, deviations, and waivers?
3. How effective have the technical oversight requirements been in providing NASA with the data/information needed to assess flight readiness?
4. What independent verification/validation assessment is performed by NASA for maximizing probability of success?
5. What is the process for assuring contractor implementation of assurance activities?
6. Where is the Contingency Action Plan documented?
7. Who currently participates on the NASA advisory team for your program?

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**NASA
SAFETY AND MISSION
ASSURANCE
REQUIREMENTS**

**NPD 8610.23
and
NPD 8610.24**

**Expendable Launch
Vehicle Launch Services
Safety Requirements**

Compliance Verification Guide

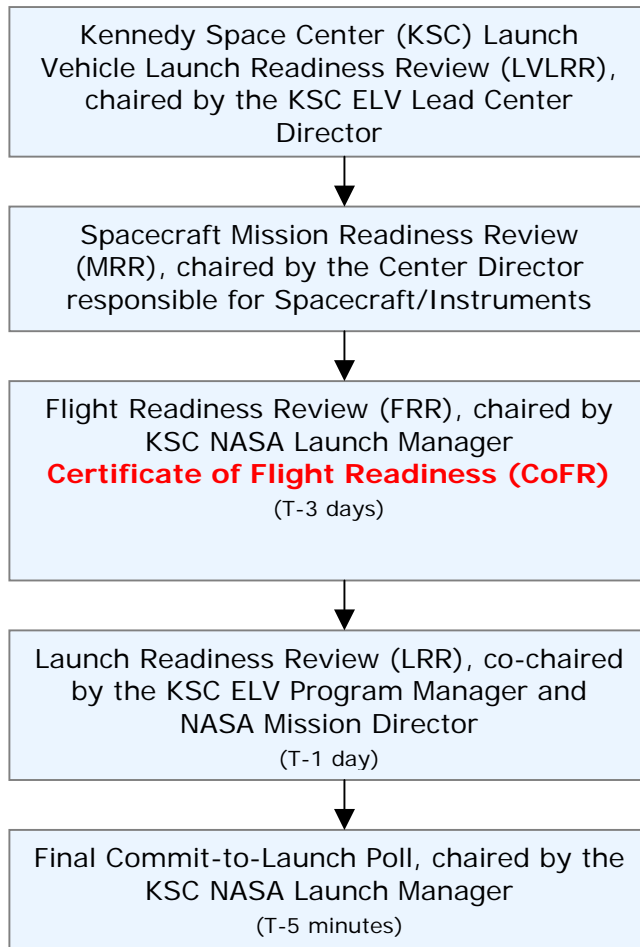
**OFFICE OF SAFETY AND
MISSION ASSURANCE**

This brochure is intended to be used as a guide only not as a replacement for the actual policy. To review Expendable Launch Vehicle Launch Services Safety Requirements (NPD 8610.23 And NPD 8610.24) in their entirety see <http://www.hq.nasa.gov/office/codeq/doctree/texttree.htm>

Objective

- ❖ To provide a safe and successful Expendable Launch Vehicle (ELV) launch, since launch remains a high-risk element affecting mission success.
- ❖ To standardize the ELV portion of the pre-launch review process
- ❖ To establish technical oversight of ELV launch services provided by commercial launch service providers.

PRE-LAUNCH REVIEW PROCESS



MINIMUM AUDIT POINTS FOR NPD 8610.24

PRE-LAUNCH REVIEW PROCESS

- ▶ **Chief Safety and Mission Assurance Officer** signs the CoFR.
 - Objective Quality Evidence (OOE) - Signature on CoFR
- ▶ **NASA Launch Manager**
 - Assures signature of the CoFR at the conclusion of the FRR.
 - OOE – Appropriate Signatures on the CoFR with Date of FRR
 - Develops and coordinates a Contingency Action Plan prior to the LRR which addresses the immediate launch site reaction plan associated with a launch vehicle anomaly and requisite data impoundment process. This plan is coordinated with the NASA Mission Director.
 - OOE – Contingency Action Plan Dated Prior to the LRR
 - Provides the final launch commitment to the Launch Services Launch Director. The Poll shall include the NASA Mission Director, NASA Advisory Team, NASA Safety and Mission Assurance (SMA) Representative, and other NASA organizations involved in the countdown.
 - OOE - A record of the Final Commit-to-Launch Poll
- ▶ **KSC ELV Program Manager**
 - Establishes a NASA advisory team to provide an independent assessment of the launch countdown process and launch readiness for each launch to the KSC Center Director. This team shall be comprised of senior ELV and spacecraft managers.
 - OOE - Independent Assessment Report(s)

A busy year of successful missions is drawing to a close for NASA's Expendable Launch Services. Since January, eight spacecraft have been safely and successfully deployed on expendable launch vehicles (ELVs). Several of these missions had been delayed by NASA ELV engineers so potential problems with vehicles could be thoroughly examined and analyzed before their subsequent launch.

- Reported 12/9/2003, KSC

MINIMUM AUDIT POINTS FOR NPD 8610.23

TECHNICAL OVERSIGHT

- ▶ **ELV Program Manager** assures NASA launch service contracts:
 - Include the Government's Approval and Insight requirements and rights as outlined in Attachment A of NPD 8610.23.
 - Permit independent verification/validation assessment by NASA of selected critical mission analyses, procedures, processes, tests and acceptance criteria to obtain the maximum practicable probability of launch success.
 - Permit approval by NASA of all mission-unique analyses, spacecraft to launch vehicle interfaces, designs, and test procedures.
 - Permit substantial involvement in, control of, and final approval by NASA for the final "go-for-launch" decision.
 - Protect the U.S. public, health, safety, and property; comply with all applicable statutory and regulatory environmental requirements; and preserve the national security as well as foreign policy interests from risk attendant with a government launch.
 - OOE – NASA Launch Services Contracts
- ▶ **Mission Associate Administrator** assures that any proposed deviations to the policy are brought to the Directorate of Space Operations attention and dispositioned through the ELV Flight Planning Board process.
 - OOE – Exceptions, Deviations, and Waivers Reviewed by the Directorate of Space Operations
- ▶ **Space Operations Director, ELV Requirements** documents approved exceptions, waivers, and deviations to the ELV technical oversight approach for specific missions at an ELV Flight Planning Board.
 - OOE – Documented Exceptions, Deviations, and Waivers